

Schedule

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LABORATORY LOCATION/ CENTRAL OFFICE:	TNB Labs Sdn. Bhd. No. 1, Lorong Air Hitam Kawasan Institusi Penyelidikan Bandar Baru Bangi 43000 Kajang, Selangor , 43000, SELANGOR MALAYSIA
	
ACCREDITED SINCE :	23 MAY 2025
FIELD(S) OF TESTING:	CHEMICAL ELECTRICAL
FIELD(S) OF CALIBRATION:	ELECTRICAL
SITE:	
1 . SITE LABORATORY(HQ) :	TNB LABS SDN. BHD., NO. 1, LORONG AYER HITAM KAWASAN INSTITUSI PENYELIDIKAN BANDAR BARU BANGI , MALAYSIA
FIELD(S) OF TESTING :	ELECTRICAL

This laboratory has demonstrated its technical competence to operate in accordance with MS ISO/IEC 17025:2017 (ISO/IEC 17025:2017).

This laboratory's fulfillment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001 (see Joint ISO-ILAC-IAF Communiqué dated April 2017).

*** The uncertainty covered by the CMC is expressed as the expanded uncertainty corresponding to a coverage probability of approximately 95 % and have a coverage factor of k=2 unless stated otherwise.**

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FIELD(S) OF TESTING :	CHEMICAL, ELECTRICAL

SCOPE OF TESTING : CHEMICAL

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
(continue)	Measurement	7.2.13
	(Mortar-Bar Method)	None
	20 Resistance to Degradation	ASTM C 535-16

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Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	None	None
	None	None
	Withstand Voltage Test Induced AC Voltage Test	(Clause 10 & 11)
	None	None
	200 to 2mA	12 + 0.42 nA
	2 mA to 20 mA	13 + 42 nA
	20 mA to 200 mA	36 pA/A + 42 nA
	200	0.17 mA/A + 0.17 HA
	2Ato20A	0.38 mAVA + 0.42 mA
	Ammoniacal Nitrogen	APHA B & C, 2017
	Oxygen (Dissolved)	APHA 4500-0 C, 2005
	Oxygen (Dissolved)	APHA 4500-0 C, 2017
	Oxygen (Dissolved)	APHA 4500-0 G, 2005
	Oxygen (Dissolved)	APHA 4500-0 G, 2017
	Oxygen (Dissolved)	APHA 4500-0 H, 2017
	Biochemical Oxygen Demand	APHA 5210 B & 4500-0 G, 2005
	Biochemical Oxygen Demand	APHA 5210 B & 4500-0 G, 2017
	Chemical Oxygen Demand	APHA 5220 C, 2005
	Chemical Oxygen Demand	APHA 5220 C, 2017
	Oil & Grease	APHA 5520 B, 2005
	Oil & Grease	APHA 5520 B, 2017
	Free, Combined and Total	In-House Method 0501 based on
	Residual Chlorine	Palintest Comparator
	Residual Chlorine	APHA 3120 B, 2005
	Silver (Ag)	APHA 3120 B, 2017
	Aluminum (Al)	None
	Arsenic (As)	Inductively Coupled Plasma -"
	Boron (B)	Optical Emission Spectrometry (ICP-
	Barium (Ba)	OES)
	Beryllium (Be)	None
	Bismuth (Bi)	None
	Calcium (Ca)	None
	Cadmium (Cd)	None
	Cobalt (Co)	None
	Chromium (Cr)	None
	Copper (Cu)	None
	Iron (Fe)	None
	Potassium	None
	Lithium (Li)	None
	Lithium (Li)	None
	Lithium (Li)	None
	Lithium (Li)	None
	Lithium (Li)	None
	Lithium (Li)	None
	Sample Pre-Treatment for	APHA 3030 F, 2005
	Metals Analysis	APHA 3030 F, 2017

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Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Residual Chlorine	None
	Chromium, trivalent	In House Method 0508 based on APHA 3500-Cr B, 2005
	Chromium, trivalent	In House Method 0508 based on
	Chromium, trivalent	APHA 3500-Cr B, 2017
	Chemical Oxygen Demand	In House Method 0560 based on APHA 5220 C, 2005/2017 & USGS -"
	Chemical Oxygen Demand	Method for analysis of organic substances in water -" Chemical
	Chemical Oxygen Demand	Oxygen Demand COD
Accessories For Cable	Rated Voltages from 6 kV up to 30 kV	IEC 60502-4:2010 IEC 61442:2005
	AC Voltage Test	IEC 61442:2005 Clause 4
	DC Voltage Test	IEC 61442:2005 Clause 5
	Impulse Voltage Test	IEC 61442:2005 Clause 6
	Partial Discharge Test	IEC 61442:2005 Clause 7
	Heating Cycles Voltage Test	IEC 61442:2005 Clause 9
Accessories For Use On Distribution Cables	Rated Voltage 0.6/1.0 (1.2) kV	BS EN 50393:2015
	AC Voltage Withstand Test	BS EN 50393:2015 Clause 8.3
	Insulation Resistance Test	BS EN 50393:2015 Clause 8.4
	Heating Cycles Test	BS EN 50393:2015 Clause 8.6
Ballast For Hpsv Lamp	Moisture Resistance Test	IEC 61347-1:2017, Clause 11
	Insulation Resistance Test	IEC 61347-1:2017, Clause 11
	Electric Strength Test	IEC 61347-1:2017, Clause 12
For Road Lighting (pecu)	Humidity Test	None
Ignitor For Hpsv Lamp	Type of Test: Moisture Resistance Test	IEC 61347-2-1:2013, Clause 11
Insulating Oil	Water Content	IEC 60814 (1997)
	ASTM Color Index	ASTM D 1500
	Type of test:	None
Insulating Oil (continue)	Dielectric Dissipation Factor	IEC 60247:2004-02
Insulation Piercing Connectors (class 1)	Voltage test	NF C 33-020-2013 Clause 6.4.1
Live-line Tools	High-Potential AC Test	IEEE Std 978-1984, Clause 5.3
Luminaires	Moisture Resistance Test	IEC 60598-1:2020, Clause 9.3
	Insulation Resistance Test	IEC 60598-1:2020, Clause 10.2.1
	Electric Strength Test	IEC 60598-1:2020, Clause 10.2.2
Photoelectric Control Units	Type of Test:	BS 5972:1980, Section 2, Clause 8.1
Power Cable	Type of Test:	None
Power Cable (continue)	Type of Test: Bending Test	IEC 60502-2:2014, Clause 18.2.4 & 18.2.5
	Type of Test: Impulse test	IEC 60502-1:2021, Clause 17.5
Power Transformer	Type of Test:	None
	Insulation Resistance	IEEE Std C57.152-2013 Clause
	Type of Test:	IEEE Std. C57.12.90:2021, Clause

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Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
Power Transformer (continue)	Type of Test: Turn Ratio Measurement	IEEE Std. C57-152-2013 Clause
Transformer Oil	Carbon Type Analysis for	IS 13155:1991

SCOPE OF TESTING : ELECTRICAL

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
Power Cable	<u>Type of Test:</u> AC Voltage Withstand Test <u>Properties Measured:</u> AC Voltage <u>Range of Measurement:</u> 0 kV - 100 kV at 50 Hz 0 kV – 400 kV at 50 Hz	IEC 60502-1:2021; Clause 15.3 IEC 60502-2:2014, Clause 16.4
	<u>Type of Test:</u> Partial Discharge Test <u>Properties Measured:</u> AC Voltage, Partial Discharge <u>Range of Measurement:</u> 0 kV – 100 kV at 50 Hz 0 pC – 1000 pC	IEC 60502-2:2014, Clause 16.3 & 18.2.5
	<u>Type of Test:</u> Bending Test <u>Properties Measured:</u> AC Voltage, Partial Discharge <u>Range of Measurement:</u> 0 kV - 100 kV AC 0 pC – 1000 pC	IEC 60502-2:2014, Clause 18.2.4 & 18.2.5

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Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	<u>Type of Test:</u> Tan Delta Measurement <u>Properties Measured:</u> AC Voltage, Tan delta <u>Range of Measurement:</u> i. Voltage: 1.0 kV to 12 kV AC Tan delta: 0 to 100 ii. Type 2809 Voltage: 1.0 kV to 100 kV AC Tan delta: 0 to 2	IEC 60502-2:2014, Clause 18.2.6
	<u>Type of Test:</u> Heating cycle test <u>Properties Measured:</u> Temperature <u>Range of Measurement:</u> Temperature: 0 -•°C to 150 -•°C	IEC 60502-2:2014, Clause 18.2.7
	<u>Type of Test:</u> Impulse test <u>Properties Measured:</u> Rise time, tail time and peak voltage <u>Range of Measurement:</u> 0 kV to 1200 kV peak 0 to 100 µs	IEC 60502-1:2021, Clause 17.5 IEC 60502-2:2014, Clause 18.2.8 IEC 60230:2018, Clause 6
	<u>Type of Test:</u> Voltage test for 4 hours <u>Properties Measured:</u> AC voltage <u>Range of Measurement:</u> 0 kV to 100 kV AC	IEC 60502-1:2021, Clause 17.4 IEC 60502-2:2014, Clause 18.2.9

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Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	<u>Type of Test:</u> Water penetration test <u>Properties Measured:</u> Temperature <u>Passing Criteria:</u> Visual inspection <u>Range of Measurement:</u> Temperature: 0 -•°C to 150 -•°C	IEC 60502-2:2014, Clause 19.24

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FIELD(S) OF TESTING :	ELECTRICAL

SCOPE OF TESTING : ELECTRICAL

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
CENTRAL LOCATION	TNB Labs Sdn. Bhd. No. 1, Lorong Air Hitam Kawasan Institusi Penyelidikan Bandar Baru Bangi 43000 Kajang, Selangor , 43000, Selangor	
FIELD(S) OF CALIBRATION :	ELECTRICAL,	

SCOPE OF CALIBRATION : ELECTRICAL

Instrument Calibrated/Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
Ac High Voltage	0 kVrms to 180 kVrms at	0.7 % of reading	IEC 60060-
	0 kVrms to 180 kVrms at	None	1.479166667
	0 kVrms to 180 kVrms at	0.7 % of reading	IEC 60060-
	0 kVrms to 180 kVrms at	0.7 % of reading	IEC 60060-
	0 kVrms to 180 kVrms at	0.7 % of reading	IEC 60060-
	0 kVrms to 180 kVrms at	None	1.479166667
	0 kVrms to 180 kVrms at	0.7 % of reading	IEC 60060-
	0 kVrms to 180 kVrms at	0.7 % of reading	IEC 60060-

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Instrument Calibrated/Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
	0 kVrms to 180 kVrms at	0.7 % of reading	IEC 60060-
	0 kVrms to 180 kVrms at	None	1.479166667
	0 kVrms to 180 kVrms at	0.7 % of reading	IEC 60060-
	0 kVrms to 180 kVrms at	0.7 % of reading	IEC 60060-
	@50/60 Hz 0 to 1 kV to 10 kV	0.058 mV/V + 0.0057 V 0.42 mV/V + 0.0057 V	Direct measurement using Vitrek 4700 Precision High Voltage Meter
Dc High Voltage	1 kV to 180 kV	0.57%	EC 60060-
	1 kV to 180 kV	0.57%	EC 60060-
	1 kV to 180 kV	0.57%	EC 60060-
	1 kV to 180 kV	0.57%	EC 60060-
	1 kV to 180 kV	0.57%	EC 60060-
	1 kV to 180 kV	0.57%	EC 60060-
	0.1 kV to 1 kV 1kV to 4 kV 4 kV to 10 kV	0.036 mV/V + 0.0043 V 0.10 mV/V + 0.026 V 0.11 mV/V + 0.0086 V	Direct Measurement Using Vitrek 4700 Precision High Voltage Meter
	0V to 100 V	0.6 mV/V	Direct
	100 V to 1000 V	0.1 mV/V	measurement with
	1000 V to 8 kV 8 kV to 15 kV	0.4 mV/V 0.2 mV/V	High Voltage Probe and 6 2
	15 kV to 30 kV	0.1 mV/V	digit multimeter
	15 kV to 30 kV	None	Direct
Dividers	50 Hz	None	1.479166667
	50 Hz	None	1.479166667
	50 Hz	None	1.479166667
	50 Hz	None	1.479166667
	50 Hz	None	1.479166667
	50 Hz	None	1.479166667
	Tail time : 40 us to 60 us	None	
Measuring System	- 1kV to -180 kV	0.57%	2:2010 Clause 5
	50 Hz	None	
	- 1kV to -180 kV	0.57%	2:2010 Clause 5
	50 Hz	None	1.479166667
	- 1kV to -180 kV	0.57%	2:2010 Clause 5
	50 Hz	None	
	- 1kV to -180 kV	0.57%	2:2010 Clause 5
	50 Hz	None	1.479166667
	- 1kV to -180 kV	0.57%	2:2010 Clause 5
	50 Hz	None	

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Instrument Calibrated/Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty ($\pm$)*	Remarks
	- 1kV to -180 kV	0.57%	2:2010 Clause 5
	50 Hz	None	1.479166667

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